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longer than wide. Thorax as long as wide, sides gradually narrowed and nearly straight before the middle, subparallel and distinctly sinuate posteriorly, posterior angles distinctly divaricate and unicarinate. Elytra not wider than the thorax, about three times the length, sides subparallel, becoming gradually attenuate behind the middle, striae deep, distinctly punctate, intervals rather feebly convex, rather finely, sparsely and asperately punctured. Length 9.25 mm., width 2.5 mm.

Type 26 May.

This species is related to *E. nigrinus* Hrbst. Aside from the color differences it may be distinguished by the thorax gradually narrowed before the middle and distinctly sinuate posteriorly and by the longer elytra.

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## NEW SPECIES OF SERICA (SCARABÆIDÆ). IV.

BY R. W. DAWSON,

LINCOLN, NEBRASKA.

### *Serica lecontei* new species.

♂. Length 9.5 mm., width 5 mm. Color varying from pale to very dark chestnut, surface polished and shining.

Clypeus nearly level with the plane of the front, sometimes slightly depressed, especially toward the sides; lower median portion feebly tumid; anterior margin moderately but suddenly reflexed, lateral margins less strongly and suddenly elevated; lateral incisure narrow and acute extending about two thirds of the depth of the elevated margin. Clypeus rather strongly and closely punctured, the punctures larger and separated by about their own diameters near the suture, smaller and more closely placed on the slightly tumid area just below the middle. Clypeal suture fine but distinct and unmodified. Front less closely and regularly punctured than the clypeus. Antennal club rather large, about equalling the total length of the antenna. Eyes of usual size. Measurements of head (in tenths of a millimeter) as follows: diameter of head through eyes, 25; distance between inner eye margins, 14; length of head on median line, 13; extreme width of clypeus in front of the incisure, 12; antennal club, 10.5; dorso-ventral diameter of eye, 9.4.

Pronotum moderately convex, the sides but little rounded, gradually convergent from the posterior angles to the anterior third, then more strongly rounded to the anterior angles; posterior angles obtuse but prominent and well marked, sides distinctly margined; puncturation rather strong and evenly distributed, the punctures separated by one to two times their own diameters. Measurements of pronotum as follows: width through posterior angles, 41;

width through anterior angles, 26; length on median line, 22. Scutellum closely and strongly punctured; length, 9.5; width, 10.

Elytra rather strongly furrowed, the sulci with three very much confused rows of coarse, closely placed punctures, the costæ well rounded and with a few scattered punctures, especially on the second, fourth and sixth; length, 75; width, 50.

Metasternum and posterior coxal plates rather strongly and closely punctured, the puncturation usually denser toward the sides. Abdominal sternites with rather numerous but finer punctures, the single rows of coarse punctures bearing the ambulatorial setæ well marked, but the setæ small and inconspicuous. Fourth sternite usually with a distinct, median, longitudinal impression near which the punctures show a tendency to develop into longitudinal wrinkles or little grooves; these modifications well marked to nearly obsolete. Last sternite opaque.

Genital armature of male (Pl. IX) symmetrical, length 2.4 mm.

♀. Differs from the male in the much smaller antennal club (5 instead of 10.5), the much less developed or obsolete clypeal notch, and the more convex, and unmodified abdominal sternites.

Type: ♂. Currant Cheap's, Charlottesville, Virginia, April 22, 1914 (H. Fox).

Allotype: ♀. Charlottesville, Virginia, May 25, 1914 (H. Fox), on red oak.

Paratypes: 136 ♂, 95 ♀.

Maine: Paris, 1 ♂, 2 ♀; Monmouth, 1 ♂; Ogonquit, 1 ♂; Old Orchard, 2 ♂.

New Hampshire: Durham, 1 ♂; E. Wakefield, 1 ♂; Three Mile Island, 3 ♂, 6 ♀; Hooksett, 1 ♀.

Vermont: Bennington County, 1 ♂.

Massachusetts: "Mass.," 3 ♂, 2 ♀; Boston, 4 ♂, 1 ♀; Fairhaven, 1 ♂; Southboro, 1 ♀; Berlin, 1 ♀; Hopkinton, 2 ♂, 2 ♀; Marion, 1 ♂; Natick, 2 ♂, 1 ♀; Stoneham, 8 ♂; Sherborn, 1 ♂, 6 ♀; Framingham, 17 ♂, 7 ♀; Tyngsboro, 18 ♂, 9 ♀; Dracut, 1 ♀; Essex County, 1 ♀; Danvers, 2 ♂.

Rhode Island: "R. I.," 1 ♂.

Connecticut: Cornwall, 1 ♂; New Haven, 3 ♂; Stanford, 1 ♂.

New York: "N. Y.," 1 ♂; Peru, 1 ♂; Wilton, 3 ♂, 6 ♀; Ithaca, 13 ♂, 3 ♀; Staten Island, 1 ♂, 1 ♀.

Pennsylvania: Hummelstown, 1 ♀; Gettysburg, 1 ♀; Hecton Mills, 1 ♂; Carlisle Junction, 1 ♀; Rockville, 1 ♀.

New Jersey: "N. J.," 1 ♂; Bergen County, 13 ♂, 18 ♀; Lahaway, Ocean County, 1 ♀; Fort Lee District, 1 ♀; Ridgewood, 1 ♂; Phillipsburg, 1 ♀; Brown's Mills Junction, 1 ♀.

Maryland: "Md.," 1 ♂.

Delaware: "Del.," 2 ♂.

Virginia: Charlottesville, 3 ♂, 3 ♀.

Illinois: Chicago, 1 ♂.

Michigan: Biological Station, 1 ♂; Isle Royal, Lake Superior, 1 ♀;

Douglas Lake, 3 ♂, 4 ♀.

Wisconsin: "Wisc.," 1 ♂; Bayfield, 1 ♂, 1 ♀.

North Carolina: Chapel Hill, 1 ♀; Southern Pines, 5 ♂, 1 ♀.

Georgia: Gainesville, 1 ♂, 1 ♀.

Alabama: Tumbling Gap, 2 ♂, 2 ♀.

Canada: Toronto, Ontario, 1 ♀; Ottawa, Ontario, 2 ♂; Three Rivers,

Quebec, 1 ♂; Nova Scotia, 2 ♂, 3 ♀.

The material studied seems to indicate a definite correlation between the intensity of certain characters and the geographical distribution of the species. Northern specimens average larger, sometimes reaching ten millimeters in length, while southern specimens are smaller, usually measuring less than nine millimeters, and sometimes down to seven. Southern specimens also seem to average lighter in color, frequently being pale chestnut or testaceous. Accompanying the reduction in size and color intensity occurs some modification of the male genital armature. The characteristic sudden and strong inflation of the stalk of the armature seems to become progressively less well marked, until in the Alabama specimens the stalk is but little modified. The specimens from Southern Pines, North Carolina and Gainesville, Georgia, show a moderate amount of expansion or widening of the terminal portion of the claspers.

Among the previously described species *lecontei* is most closely related to *georgiana* Leng, but the latter species may be recognized at once by its very strongly tumid clypeus. The genital armatures of the two species are very similar, but the stalk of the armature in *georgiana* is never so strongly and suddenly enlarged as in typical *lecontei*.

***Serica spicula*** new species.

♂. Length 7.5 mm., width 4.5 mm. Color claret brown to chestnut, surface bare, polished and shining.

Clypeus not, or but very slightly, depressed, the discal area below the center with a distinct median tumidity, nearly as prominent, when viewed from the side, as the reflexed anterior margin. Anterior margin abruptly, moderately elevated, divided from the less strongly and suddenly elevated lateral margins by deep and acute incisures. Viewed perpendicularly the anterior, reflexed margin broadly and feebly emarginate medially, viewed at an angle from above, evenly but very slightly arcuate. Clypeal suture nearly arcuate,

fine and inconspicuous. Punctures of clypeus moderately fine and quite regularly placed, separated by about their own diameters. Front less closely and regularly punctured than the clypeus, especially in the upper portion where it becomes nearly impunctate. Antennal club well developed, slightly longer than the preceding joints. Eyes moderately prominent. Measurements of head in tenths of a millimeter: diameter of head through eyes, 22; distance between inner eye margins, 13; length of head on median line, 17; extreme width of clypeus in front of incisure, 10; antennal club, 9.4; dorso-ventral diameter of eye, 8.

Pronotum not very convex, the sides only feebly arcuate, hind angles distinct, nearly rectangular, surface very uniformly punctured, with the punctures slightly coarser than those of the head, and separated by one to two times their own diameters; at the middle of each side, near the margin a small, inconspicuous, piceous spot. Measurements of pronotum: width through posterior angles, 35; width through anterior angles, 23; length on median line, 20. Scutellum with moderate-sized punctures crowded toward the sides; length, 9.4; width, 9.4.

Elytra rather strongly furrowed, the sulci with two confused rows of rather strong punctures, separated by about half their own diameters, costæ well rounded and polished, with only an occasional strong puncture; length, 60; width, 45.

Metasternum and posterior coxal plates strongly and coarsely punctured, the punctures separated on the average by a little less than their own diameters. Hind femora and abdominal sternites also closely and deeply punctured but the punctures distinctly smaller than those of the hind coxal plates, separated on the last sternite, which is more or less strongly opaque or pollenose, by half their own diameter or less. The single rows of ambulatorial setæ and the coarse punctures bearing them not at all conspicuous.

The genital armature of the male (Pl. X) bears a striking resemblance to that of *lecontei*, but differs at a glance by possessing the terminal spicules; length, 2.3 mm.

♀. Differs from the male by its smaller antennal club (6.5 instead of 9.4), less strongly developed clypeal incisure, more convex underline of abdomen and arcuate, rather than emarginate, terminal sternite.

Type: ♂. Macon, Georgia, May 6, 1919 (Fox and Johnson), on post oak.

Allotype: ♀. Same data.

Paratypes: 1 ♂, 1 ♀. Same data.

### ***Serica opposita* new species.**

♂. Almost an exact counterpart of *spicula* just described, but differing as follows: averaging slightly larger, length 8 mm., width 4.7 mm.; clypeal tumidity less well developed, viewed in profile scarcely half the height of the anterior reflexed margin; clypeal incisures stronger and less acute, entirely dividing the somewhat more strongly elevated lateral and apical reflexed mar-

gins, the apical, reflexed margin almost straight when viewed perpendicularly; antennal club relatively larger, 11 instead of 9.4; the claspers of the genital armature of male (Pl. XI) lack the terminal spicules, but show on each side a well-developed median tooth.

♀. Clypeal margins, especially the lateral, only half to two thirds as strongly elevated as in the male, and clypeal notch distinctly less well developed, acute and on the average about half dividing the elevated rim; antennal club small, 7.6 instead of 11 as in the male.

Type: ♂. Riverton, New Jersey, May 25, 1919 (J. J. Davis), on post oak.

Allotype: ♀. Same data.

Paratypes: 11 ♂, 12 ♀.

New Jersey: "N. J.," 6 ♂, 3 ♀; Riverton, 5 ♂, 9 ♀.

***Serica vespertina accola* new subspecies.**

♂. Length 8.5 mm., width 4.8 mm. Color uniformly light brown (amber brown to argus brown), surface bare, polished and shining.

Clypeus not or but very little depressed at the suture, nearly flat with only a very feeble convexity beyond the middle; anterior margin abruptly, moderately elevated, separated from the slightly less elevated lateral margins by strong though acute incisures which nearly or quite divide the elevated rim. Viewed vertically the anterior reflexed margin is straight, viewed at an angle from above rather strongly and evenly arcuate from side to side. Clypeal suture distinct, bluntly angled at the middle. Puncturation close, even, and moderately strong, the punctures separated by one half to two thirds their own diameters. Front less closely and regularly punctured, especially above. Antennal club about equal to the total length of the antenna beyond the basal constriction of the first segment. Eyes larger than usual. Measurements of head: diameter of head through eyes, 25; distance between inner eye margins, 13.5; length of head on median line, 18; extreme width of clypeus in front of incisure, 11.5; antennal club, 9.4; dorso-ventral diameter of eye, 10.

Pronotum less convex and narrower behind than usual, sides feebly arcuate, moderately convergent through the anterior third; surface covered with moderate-sized punctures, rather evenly placed, separated by one to two times their own diameters, except just above the mid-lateral piceous spot where the punctures are a little smaller and separated by only half their own diameter, while below and behind this area the punctures are less numerous, but twice as large. Measurements of pronotum: width through posterior angles, 38; width through anterior angles, 26; length of median line, 22. Scutellum strongly and closely punctured, except at the middle, length, 7.7; width, 7.7.

Elytra only moderately furrowed, the sulci with three fairly definite rows of strong punctures, separated by about their own diameter; the costæ with only an occasional coarse puncture, well rounded but somewhat narrowed and rather definitely marked by the adjoining rows of strong punctures; length, 65; width, 48.

Mesosternum and posterior coxal plates strongly and coarsely punctured, more closely so toward the sides where the punctures are separated by only half their own diameter. Punctures of abdominal sternites distinctly smaller, half to two thirds the size of those on the posterior coxal plates, and separated by nearly twice their own diameter. The single rows of ambulatorial setæ short and inconspicuous, born by only moderately coarse punctures. Fourth sternite with a more or less well-defined, median, longitudinal impression, with the adjacent punctures often tending to develop into longitudinal wrinkles. Last sternite and margins of pygidium opaque and faintly iridescent.

Length of genital armature of male (Pl. XII), 3 mm. A very characteristic position of the claspers shows the shorter one more strongly flexed downward than the longer one.

♀. Differs from the male by having distinctly smaller eyes (8.2 instead of 10), shorter antennal club (8 instead of 9.4) and the fourth abdominal sternite unmodified.

Type: ♂. Lincoln, Nebraska.

Allotype: ♀. South Bend, Nebraska, May 5, 1918 (R. W. Dawson), on boxelder.

Paratypes: 8 ♂, 9 ♀.

Nebraska: Lincoln, 3 ♂, 6 ♀; West Point, 1 ♀.

Alabama: Mobile, 4 ♂, 1 ♀; Grand Bay, 1 ♂, 1 ♀.

The form here described differs from *vespertina* principally in the form of the clypeus, which in that species is strongly, transversely ridged or folded, or as the original description says: "*in medio disci transversim elevato-sub-carinatus*." The transverse ridge is very densely punctured. However, these very striking and positive characters vary in intensity and seem to be evanescent, especially in the southern and western parts of the range of *vespertina*. Since the genital armatures of *vespertina* and *accola* are indistinguishable it seems best to regard *accola* as a geographical race or subspecies of *vespertina*.

**Serica egregia** new species.

♂. Length 8 mm., width 4.2 mm. Color chestnut, surface opaque, slightly sericeous, probably distinctly so on fresh specimens.

Clypeus feebly and indistinctly tumid beyond the middle of the discal area, anterior margin moderately reflexed, lateral margins less strongly elevated, especially toward the clypeal suture; viewed vertically, the anterior margin broadly and distinctly arcuate at the middle, with the corners less broadly rounded than in *mixta*; viewed at an angle from above, the margin appears slightly bisinuate because of the rather prominent rounded corners; lateral incisure entirely obliterated; clypeus densely, evenly and finely punc-

tured, the punctures separated by little more than half their own diameters. Clypeal suture arcuate and distinct. Front less densely punctured than the clypeus, the punctures separated by about twice their own diameters. Antennal club small, about equal to the combined length of joints 2-6, inclusive. Eyes relatively small. Measurements of head in tenths of a millimeter: diameter of head through eyes, 21; distance between inner eye margins, 15; length of head on median line, 16.5; antennal club, 6; dorso-ventral diameter of eye, 6.5.

Pronotum not very convex, the punctures fine, rather evenly placed and separated by about twice their own diameters; posterior angles of pronotum well rounded but distinct, lateral margins only slightly arcuate, the mid-lateral, pigmented spot present. Measurements of pronotum: width through posterior angles, 33; width through anterior angles, 22; length on median line, 19. Scutellum evenly punctured like the pronotum: length, 6.5; width, 7.

Elytra with distinct line-like striae, each stria with a single, slightly irregular row of fine punctures separated by about their own diameters; the rows of punctures somewhat obscured or confused by rather numerous, fine punctures at the sides of the intervals. The lateral striae at least with a few yellow, semi-erect, but inconspicuous hairs. The intervals of uniform width instead of alternately wider and narrower as in *mixta*. Length of elytra, 60; width, 43.

Under surface shining, but with a slight metallic sheen or iridescence. Metasternum and posterior coxal plates strongly punctured, the punctures separated by one to three times their own diameters. Abdominal sternites with the usual single rows of coarse, setigerous punctures and with a fine puncturation about like that on the pronotum, except on the last sternite where the puncturation becomes a little coarser, stronger and denser with the punctures showing a tendency to coalesce. Under surface, except in the region of the anterior coxae and mesosternum, nearly devoid of hair, the pubescence yellow, very fine, sparse and inconspicuous.

Length of genital armature of male. 2 mm. (Pl. XIII).

♀. Unknown.

Type: ♂. California.

The unique type of this species is the fourth of the five specimens associated together under the name *mixta* by Dr. Le Conte. The specimen, of course remains in the Le Conte collection.

It seems to the writer not improbable that the two species here described as new (*egregia* and *abdita*) were only tentatively associated by Dr. Le Conte with the first three type specimens of *mixta*.

***Serica abdita*** new species.

♂. Length 7 mm., width 3.75 mm. Color brownish testaceous (argus brown), surface not polished as in the *vespertina*-like species, but somewhat opaque or pollenose with more or less of a sericeous, iridescent luster, the exact intensity of which cannot be determined from the single specimen at hand.



Clypeus with the discal area practically continuous with the slight, even convexity of the front, its margins rather strongly elevated, scarcely less so at the sides which are not separated from the apical portion by an incisure, there being a scarcely discernible waver in the elevated margin at the juncture of its apical and lateral parts; viewed perpendicularly the anterior margin is straight, viewed at an angle from above a slight median prominence is evident; surface of clypeus finely, evenly, and closely punctured, the punctures separated by about half their own diameters. Clypeal suture very fine and indistinct. Front a little less strongly, closely and evenly punctured than the clypeus. Antennal club of moderate size about equal to the total length of the antenna beyond the basal constriction of the first segment. Eyes relatively small. Measurements of head in tenths of a millimeter: diameter of head through eyes, 19; distance between inner eye margins, 13; length of head on median line, 15; antennal club, 7.5; dorso-ventral diameter of eye, 6.

Pronotum moderately and evenly convex, the surface finely, closely and evenly punctured, the punctures separated by about their own diameters, slightly more at the middle and less at the sides; posterior angles rather obtuse and rounded, anterior angles distinct; width of pronotum, viewed vertically, carried forward to the middle, then distinctly decreasing to the anterior angles; lateral margins, viewed from the side, rather strongly and evenly arcuate from base to apex; near the lateral margins and about three fifths of the way from the base a small, slightly impressed area with a small, pigmented spot on its posterior margin. Measurements of pronotum as follows: width through posterior angles, 30; width through anterior angles, 20; length on median line, 18. Scutellum finely and densely punctured except for a small median and basal area; length, 7; width, 8.

Elytra with rather feebly impressed, line-like striæ, each stria with a single row of small punctures, separated by a little more than their own diameters, the rows of punctures, however, somewhat confused or obscured by admixture with the sparse, scattered punctures of the intervals. The intervals feebly convex, the second, fourth, sixth and eighth very slightly wider than the others. Length of elytra, 53; width, 37.

Metasternum and posterior coxal plates, especially the latter, shining and polished, elsewhere, except the femora, tibiæ and tarsi, with the surface dulled by a sericeous bloom. Beneath, except on the abdomen, thinly clothed with erect, yellow hairs, the hairs on the metasternum comparatively short, about half the length of those on the anterior and middle coxæ and femora. Punctuation fine and close on the metasternum, distinctly stronger and a little less dense on the posterior coxal plates, and very fine or minute on the abdomen, where the punctures bear short, inconspicuous, recumbent hairs. The usual, single rows of coarse setigerous punctures well developed on the abdominal sternites.

Length of genital armature of male, 2.7 mm. (Pl. XIV). Attention should be drawn to an important structural feature not clearly shown in the figures,

namely, the presence of a narrow, tapering, chitinous process extending far up into the ventral membrane at the base of the claspers.

♀. Unknown.

Type: ♂. Southern California.

The unique type is the fifth specimen (as numbered) of the series associated together by Dr. Le Conte under the name *mixta*. As in the case of the preceding type it remains in that collection.

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## MISCELLANEOUS NOTES AND RECORDS OF LOCAL LEPIDOPTERA, AND DESCRIPTION OF TWO NEW ABERRATIONS.

BY FRANK E. WATSON,

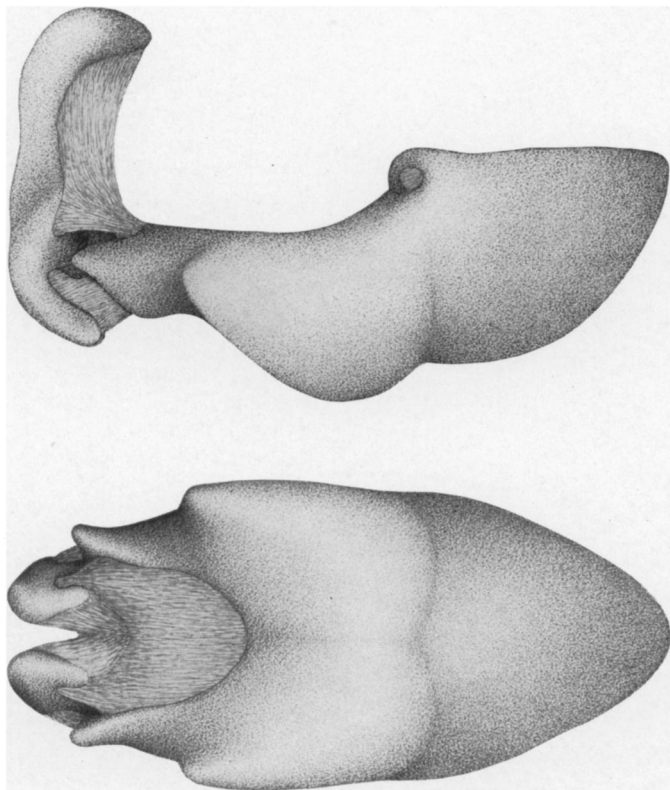
NEW YORK, N. Y.

### BUTTERFLY COLLECTING IN THE VICINITY OF NEW YORK FOR THE SEASON OF 1920.

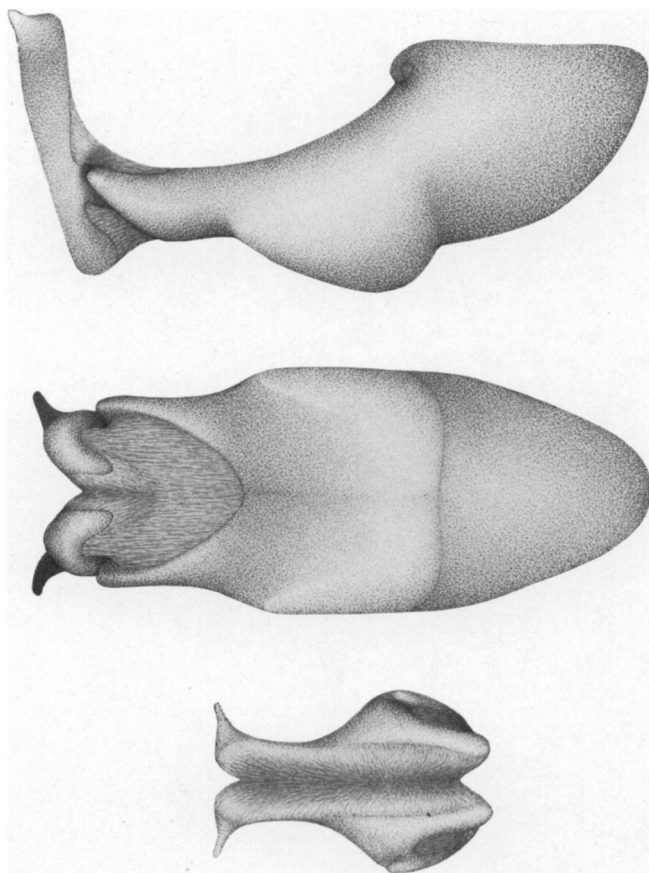
The exceedingly poor butterfly collecting in the vicinity of New York City this past season may perhaps be laid to the abnormal weather conditions, particularly to the greatly reduced amount of spring-like weather through March, April and May. Following a long cold winter, March was warm and springlike from the middle to the end of the month. It also had a remarkable number of clear days for that month in this vicinity. April gave us just five nice warm spring-like days. May was better with nineteen warm days, and being steadily warm after the 14th. The weather, during June, was normal. July and August were exceedingly hot, humid and rainy. When not actually raining it was damp and cloudy with rain threatening, so that there were few sunny days during these two months.

*Cornus mass.*, a European Dogwood, produced its first flowers on April 1 in Colonial Park, New York City. The same shrubs last year flowered for the first time on March 18, *i.e.*, two weeks earlier. With the butterflies, at any rate, the season has apparently been about two weeks late, not becoming normal until about August 1.

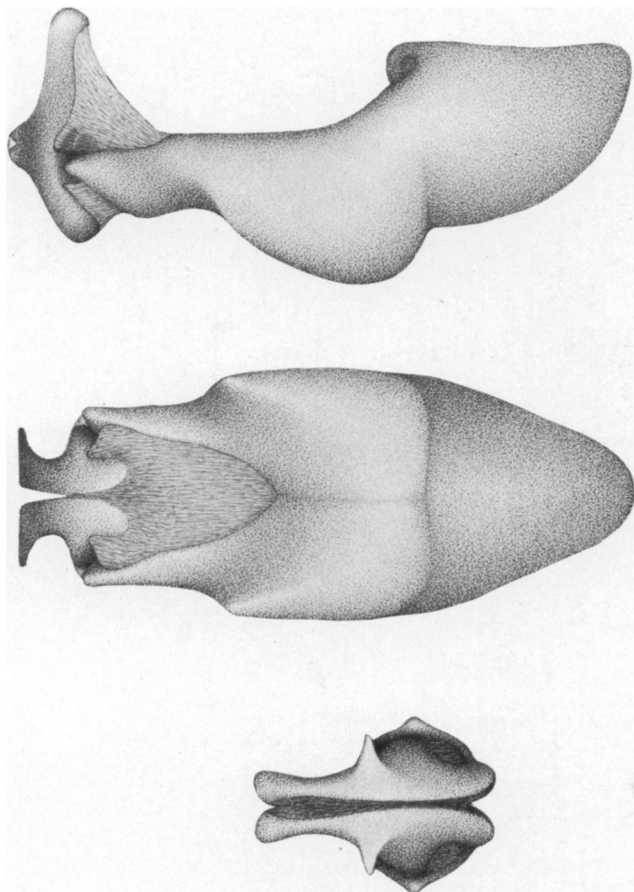
In Van Cortlandt Park, New York City, commencing with Au-



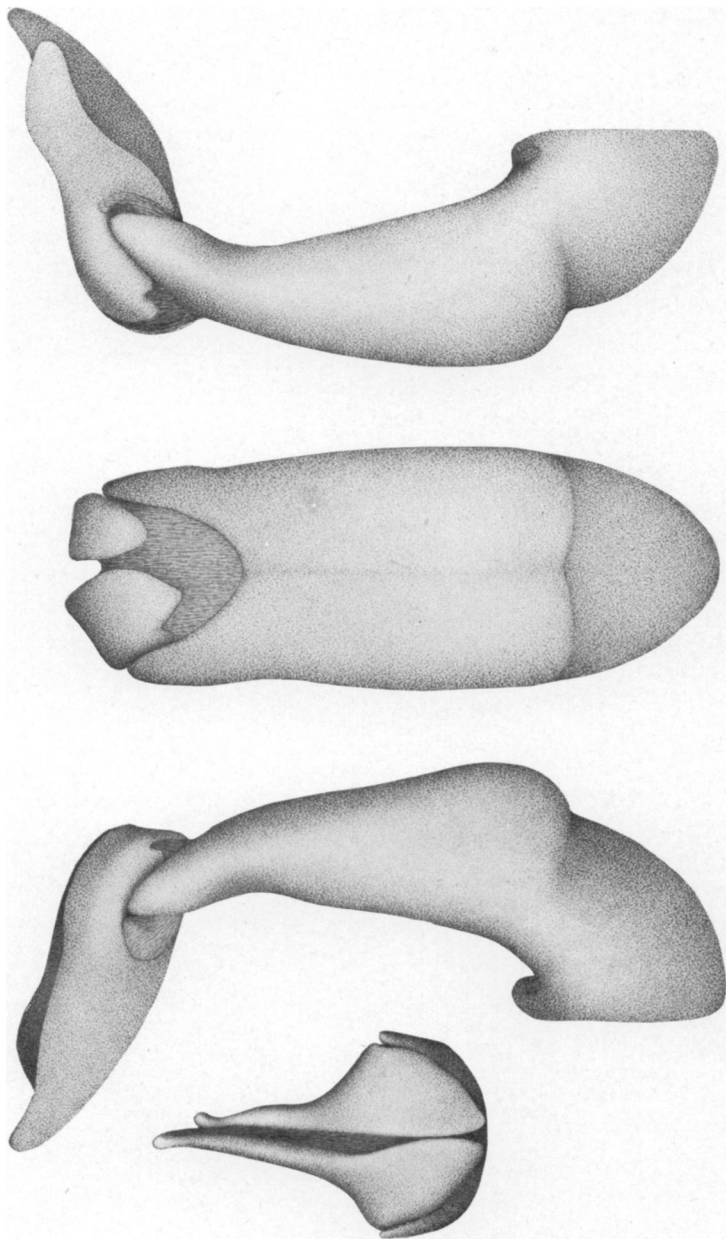
SERICA LECONTEI.



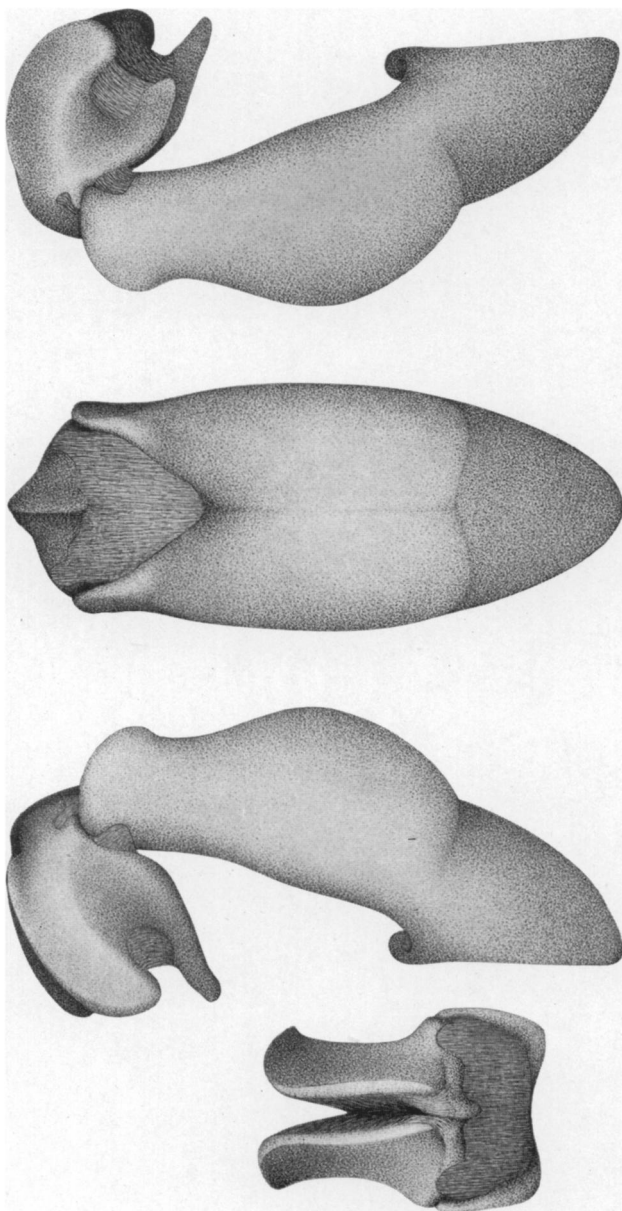
SERICA SPICULA.



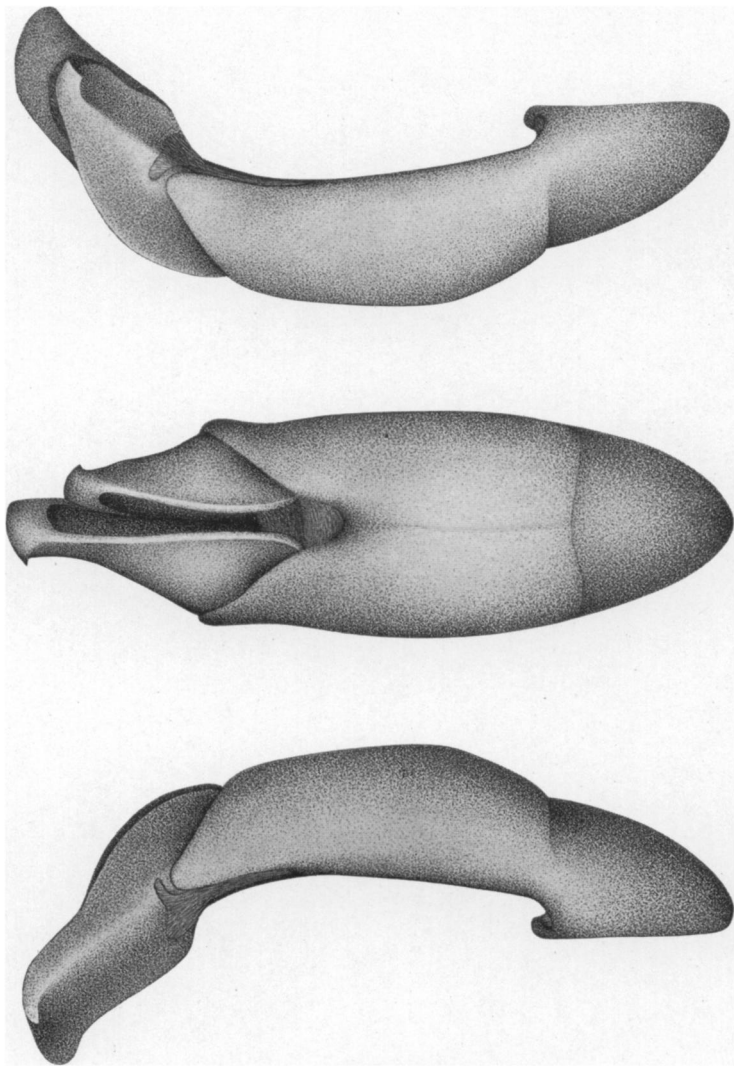
SERICA OPPOSITA.



SERICA VESPERTINA ACCOLA.



SERICA EGREGIA.



SERICA ABDITA.